toneum, diuretics and diaphoretics—the two latter being met by saline infusions—and possibly reopening the abdomen to drain the site of trouble, especially if pus be present.

Occasionally hematomata result from operative work, usually due to incomplete hemostasis brought about perhaps by piercing a small vessel under the peritoneum in passing a suture, or slipping of a ligature in a buried stump. These conditions generally subside under appropriate treatment, comprising rest in bed, and local applications, though discomfort and pain are present for some time. Another class of cases may present the evidences of an infective phlebitis of one or more of the veins in the pelvis.

Adhesions, however, are by far the greatest cause of pain persisting after operation. These are caused by rough handling of peritoneal surfaces and leaving raw tissues uncovered by peritoneum. We are often conscious of the amount of abrasion of the delicate epithelial surfaces produced, for instance, by attempting to work through a very small incision, or in the separation of old adhesions binding down a uterus, ovary or tube. It is of course impossible in some instances to cover all raw surfaces from the nature of the case; for example, in removing a pus tube buried in a large exudate involving rectum and broad ligament, and in such a case it may become necessary to leave a portion of the exudate on the rectal wall to avoid tearing it. If we can draw over enough peritoneum to cover this raw surface, well and good; but often that is not possible without too much tension, and we then have an ideal condition of affairs to cause the formation of adhesions. Following such cases as these, adhesions are ordinarily unavoidable, and are usually accompanied by a train of well marked sequelæ.

The symptoms are: pain, often severe, tympanitis if the adhesions in any way implicate the bowels, and ranging from this to complete intestinal obstruction, dysmenorrhea, sterility, frequent micturition. And in fact the functions of any organ implicated in the adhesions are rendered painful and difficult. It is frequently found that a small constricting band is the cause of a great deal of suffering.

As to *treatment* which is *preventive,* cargile membrane from which so much was expected, has proved disappointing, sterilized oil has been frequently tried as well as glycerine, but cannot be depended on to remain where it is placed. Aristol is now in considerable vogue in New York. It is simply dusted on, and is said to work well and to be productive of no harm. It is too early to be sure of results in the cases I have used it in.

Dr. Carpenter informs me that he has been using sterilized vaseline with good results. The better method, where possible, is to cover all raw surfaces with peritoneum or omentum, and to practice the strictest asepsis and care in handling the peritoneal surfaces.

After operation something can be done in the way of preventing the formation of adhesions by promoting early peristalsis, and when they are to be expected magnesium sulphate is often given by stomach tube before the patient leaves the table at Johns Hopkins Hospital, Baltimore.

My own practice is to give a half ounce of magnesium sulphate in half or two-thirds of a glass of water, to be repeated in three hours if necessary. The first dose is given usually within twelve hours after operation. If neither first nor second dose acts, a high enema of epsom salts and glycerine is given as an adjuvant. Castor oil acts rather well if given in large enough dose to operate reasonably soon.

In the *American Journal of Obstetrics* for March, physostigmine 1-160th of a grain three times a day subcutaneously is mentioned in an article by Dr. Cumston as being used by Vogel to promote peristalsis after operation. I have tried it in two cases, but its action seemed very slow, taking nearly two days before evacuations began. Perhaps this would be useful as an aid to the usual cathartics given soon after operations or when the stomach cannot retain anything.

Later, if adhesions have formed, the symptoms may be ameliorated by massaging and stretching them through the vagina, and the use of tampons. The more perfect the operator's technic, the fewer cases of adhesion, with their train of consequences, will occur. Still there will occasionally be cases of this character which, if severe, may require a laparotomy to sever the constricting bands and release the viscera, whose functions are thus interfered with.

When in Berlin, I noticed that the majority of operators preferred generous incisions which afford easy access to the abdominal contents, thus helping to prevent undue handling of the organs and injury to the edges of the parietal peritoneum, and to that degree lessening the tendency to adhesions but somewhat increasing the liability to hernia.

As regards frequency of occurrence, I have made a number of inquiries relative to the percentage of cases presenting post operative pain and disability, but have not received data enough to draw any conclusions in this respect.

GENERAL DISEASES AS A CAUSE OF DISEASES OF THE EYE.*

By W. W. WARD, M. D., Woodland.

An abnormal condition of the eye as a cause of functional disease of the nervous system and even of organic disease of certain portions of the body has been a popular subject in medical literature for the past decade. Of eye strain as a cause of headache, neuralgia, chorea, sleeplessness, chronic gastric and digestive disturbances, epilepsy, nervous prostration and insanity, we have probably heard too much. It may not be unprofitable, therefore, to look upon the other side of the shield and read carefully what is written there, particularly in these days when there exist not only specialties, but specialties within specialties, and matters medical are viewed from as many different standpoints as there are specialties.

Emphasis, where emphasis is now assuredly due, furnished the motive for the preparation of

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this paper. I advance the proposition that the ophthalmologist is a general practician. No other specialty demands such a knowledge of general or systemic diseases as that devoted to the diagnosis and treatment of affections of the eye. A mere recital of the etiology of the most important of these affections will render this truth apparent.

Beginning with diseases of the optic nerve, we note that optic neuritis has as its starting point, in nearly all cases, some form of meningitis. It never occurs in spinal meningitis, but is quite frequent in basic cerebral meningitis, whether due to injury of the head or to tubercular disease. The inflammation in these cases travels down the inner sheath of the optic nerve, along its interstitial connective tissue, or in some cases along its intrinsic blood vessels, from the brain or the brain membranes. From the local meningitis that attends intracranial tumors or syphilitic disease the process is the same, a descending neuritis. Active mercurialization is the treatment for specific cases, and the sooner the diagnosis is made the better the prognosis.

Among other causes are:

1. Chlorosis in which the papillitis is due to the disordered state of the blood and readily yields to the administration of iron.

2. Suppression of menstruation from exposure to cold where an acute papillitis and rapid blindness may result. Irregularity of menstruation and the climatic period also give rise to optic neuritis, but in a more chronic form. Needless to say the treatment here should be directed toward restoring the uterus to normal action when possible.

3. Rheumatism, influenza, malaria, typhoid, measles and scarlet fever have each occasionally given rise to papillitis.

4. General lead-poisoning will produce optic neuritis and sudden complete blindness may occur in connection with an attack of lead colic. The treatment is for the general condition.

Retro-bulbar neuritis is usually due to chronic nicotinism, alcoholism, or both. Prohibition is the main treatment. In its acute form, rheumatism is the usual cause, when administration of the salicylates is indicated.

Atrophy of the optic nerve may follow papillitis from any of the causes before mentioned, but in its primary form it is most often associated with tabes dorsalis. One-fifth of all the cases of tabes are afflicted with progressive optic atrophy, which is probably the same process that attacks the posterior columns of the cord. It attacks both eyes, usually simultaneously, but the disease in one eye may precede that in the other by from one to four years. The sclerosis as a rule comes on early, and optic atrophy may not only be the first symptom of tabes, but it may precede all spinal symptoms by from two to twenty years. This, together with two other symptoms that usually come on early, namely, the Argyll-Robertson pupil, and the absence of patellar reflex, enable us to make an early diagnosis. This atrophy advances slowly but surely until there is complete blindness, and hence is well named "progressive." It occurs also in such diseases of the brain as disseminated sclerosis and progressive paralysis of the insane. In any case the treatment consists of the management of the causal disease.

The retina is seldom affected by disease which is limited to itself alone, or even to the eye alone, but most often lesions of the retina are part of a general disease, and are frequently of valuable assistance in the diagnosis of such. The diseases most frequently producing serious retinal complications are diseases of the kidneys, diabetes, syphilis, septicemia, and leukemia.

Among ocular affections, papillitis and choroiditis almost always lead to retinal changes, the former because of the interference of blood supply produced by the swelling of the disc, and the latter on account of the close anatomical relationship of the choroid and retina. Both papillitis and choroiditis, however, are usually in turn dependent upon some general disease.

Retinal hemorrhages, aside from the very frequent cause, trauma, are as a rule due to alterations in the blood vessels, or to changes in the blood itself. They occur with comparative frequency in general arteriosclerosis, nephritis, gout, diabetes, anemia, leukemia, purpura and scurvy. When such predisposing factors are present, the immediate cause is often violent exertion, such as straining at stool or coughing. They occur as the result of menstrual disturbances also; and in the new born from pressure during delivery, which may account for many obscure cases of congenital amblyopia. Other general causes mentioned by authors are lead and phosphorous poisoning, jaundice, pregnancy and parturition, pernicious malaria, pyemia, and septicemia.

Retinitis is an active inflammatory condition only as the result of trauma. If associated with neuritis we term it neuro-retinitis. All other varieties are the result of degenerative or atrophic changes, and occur largely as an accompaniment of general diseases. Thus we have syphilitic retinitis, albuminuric retinitis, diabetic retinitis, septic retinitis, leukemic retinitis.

Of choroidal, ciliary and iritic disease, it is claimed that fully seventy-five per cent is due to constitutional syphilis, inherited or acquired, twenty per cent to gout and rheumatism, and the remaining five per cent to toxic and other causes, such as lead-intoxication, gonorrhea, etc.

If this be true, then the general treatment should be our main reliance, as we know it is. Administration of the iodides, mercurials, salicylates and other internal remedies are merely supplemented by local applications, because we are treating a general condition, not simply a local one.

Primary disease of the sclerotic is not a common one from any cause, but whether superficial or deep it is often found in persons with a feeble circulation and a liability to catch cold. In some cases there is a definite family history of tuberculosis; in others the rheumatic diathesis is present.

The cornea of the eye and the enamel of the

teeth are both farther removed from the blood vessels than are any other tissues of the body, and are, therefore, especially affected by malnutrition. Both are extremely susceptible to disturbances of general nutrition from defective supply, or bad quality of the blood. Ulceration of the cornea always means deficient vitality, whether bacteria be locally active in the ulcer or not. This is evident in badly nourished and anemic children and in tuberculous young subjects, who are the greatest sufferers from this eye trouble. Where traumatism and the entrance of micro-organisms is a cause, the disease is all the worse in such subjects.

Parenchymatous keratitis furnishes the most conspicuous example of the effect of a general disease upon the eye. The ordinary cause is syphilis, over fifty per cent of the cases being due to inherited syphilis. It is more common in girls than in boys, and appears most frequently during the second dentition or at puberty. The condition consists in a deep infiltration of the cornea without ulceration, and we manage a case by treating the cause. No local remedy or combination of local remedies can effect a cure of this disease.

In diseases of the conjunctiva alone do we find a realm where local therapeutics are deemed paramount; but even here we find conditions that resist applications of any kind, but readily yield to a free use of the salicylates internally administered. By far the most common form of all inflammations of the conjunctiva is phlyctenular conjunctivitis, which belongs to the scrofulous period of life. The internal administration of tonics and a general treatment conducted with due regard to the etiology is of special importance here.

Diphtheritic conjunctivitis is now treated by subcutaneous injections of the antitoxine, which treatment has rendered the prognosis much better than it formerly was, just as it has in diphtheria of the throat, or of any other portion of the body.

Now lastly as to eye strain, a condition deemed so important that our California legislature has recently been persuaded to recognize a separate specialty for its treatment, optometry, (which by the way is the most foolish piece of legislation that a state has ever foisted upon a confiding public). I ask is that condition in any way dependent upon general affections? Those "optometrists" who advertise themselves as eminent eye specialists have already announced that it is not.

Asthenopia may be due to a strain of the ciliary muscle as in hyperopia or astigmatism; to a strain of the internal rectus as in myopia or astigmatism; or to a want of balance of other ocular muscles; or to anisometropia; each of which conditions is rectified by local treatment—glasses, pilocarpine, exercises, or operations. But in many cases it is also due to a central nervous affection.

Nervous asthenopia is often found in cases of neurasthenia. In this affection the derangements of vision are purely functional, like all other symptoms of the disease, and are not dependent upon an error of refraction or want of muscular equilibrium. It is likewise not dependent upon any organic disease of the retina, or other portions of the visual apparatus, but consists in an incapacity of the eye for any continuous exertion, in spite of there being good visual power.

Patients will complain that after reading or working for even a short time everything becomes covered with a cloud, or that they will suffer from smarting or watering of the eyes, or that it brings on headache. When no strain is put upon the eyes there is usually no trouble, but in some cases the pains never entirely disappear, or a great sensitiveness to light is constantly present. This is very common in school children who have been too closely confined to their books, or have not had enough of their natural outdoor life.

The most important and characteristic symptom of this trouble is concentric contraction of the fields of vision as determined by the careful use of the perimeter. The phenomenon known as the fatigue field is well marked in adults suffering from nervous asthenopia. Other nervous symptoms besides those manifest in the eye are usually present, but not always so.

The treatment is rest of the eyes from near work and a general building up of the nervous system by cold baths, open air exercise, and nourishing food, with administration of iron, nux vomica and other tonics. Glasses will do but little good even if there exist some ametropia. Nervous asthenopia occurs also in hysteria and in traumatic neurosis. I had an interesting case under observation a few months ago due to the last named cause.

In September, 1904, Miss S——, a school teacher, came to me complaining of attacks of blurring, especially in the left eye, that would last from one to three days and then remit. During these attacks she would suffer from photophobia, headache, and dark spots floating before the eye that would almost totally incapacitate her for her work, which nevertheless she persisted in doing, being an individual of strong will power. She had always been robust and healthy till two years before, when she was violently thrown to the ground from her cart by her horse becoming frightened at a railway train, and being brought suddenly to a stop by running into a telegraph pole. She was considerably shaken up, and for six weeks was unable to attend to her duties at school. Ever since that accident she seemed very nervous, starting at every little noise, and suffered from insomnia and frequent headaches, attacks of numbness at the back of the head and of paresthesia on the left side of the face and head; from intense fear in riding or driving and an inability to concentrate her mind upon any work whatever. There were spots of anesthesia on the left side of the forehead.

Upon examination of the eyes no opthalmoscopic changes were found in either, the pupils were alike in size and active, the cornea showing an astigmatism of less than half a dioptre, 90 degrees, and the vision was 20-12 in each eye. The left internus was unsteady. The perimeter showed a normal field for white, red and green in the right eye, but there was a concentric contraction of the field in the left, approaching to within 20 degrees of the fixation point.

All of the eye symptoms disappeared, together with abatement of the other symptoms, under a treatment for the general affection.

Remember our new address, 2210 Jackson Street, San Francisco.